

Practice: 512 - Forage and Biomass Planting**Scenario: #1 - Native warm season grass****Scenario Description:**

Establish or reseed adapted perennial native grasses to improve or maintain livestock/wildlife nutrition and health, extend the length of the grazing season, and provide soil cover to reduce erosion. Used for either conventional or no-till seeding of native grasses for pasture, hayland, and wildlife openings. This practice may be utilized for organic or regular production. This scenario assumes fertilizer, seed, equipment and labor for seed bed prep, tillage, seeding, and spreading.

Before Situation:

Poorly managed/degraded pasture land or cropland being converted to pasture and/or hay.

After Situation:

Suitable species are established to improve forage quality and quantity and reduce soil erosion on cropland, hayland, pasture, and/or biomass production.

Scenario Feature Measure: Acres of Forage and Biomass Planting**Scenario Unit: Acre****Scenario Typical Size: 30****Scenario Cost: \$7,378.07****Scenario Cost/Unit: \$245.94****Cost Details (by category):**

Component Name	ID	Component Description	Unit	Price (\$/unit)	Quantity	Cost
Equipment/Installation						
Chemical, ground application	948	Chemical application performed by ground equipment. Includes equipment, power unit and labor costs.	Acre	\$5.93	30	\$177.90
Fertilizer, ground application, dry bulk	950	Dry bulk fertilizer application performed by ground equipment. Includes equipment, power unit and labor costs.	Acre	\$6.58	30	\$197.40
Lime application	953	Lime application performed by ground equipment. Includes equipment, power unit and labor costs.	Acre	\$9.82	30	\$294.60
Seeding Operation, No Till/Grass Drill	960	No Till drill or grass drill for seeding. Includes equipment, power unit and labor costs.	Acre	\$20.65	30	\$619.50
Foregone Income						
Fl, Hay, General Grass	2122	General Grass Hay is Primary Land Use	Ton	\$41.38	75	\$3,103.50
Materials						
Herbicide, Glyphosate	334	A broad-spectrum, non-selective systemic herbicide. Refer to WIN-PST for product names and active ingredients. Includes materials and shipping only.	Acre	\$15.63	30	\$468.90
Herbicide, Imazapic	335	Refer to WIN-PST for product names and active ingredients. Includes materials and shipping only.	Acre	\$12.62	30	\$378.60
One Species, Warm Season, Native Perennial Grass	2322	Native, warm season perennial grass. Includes material and shipping only.	Acre	\$70.93	30	\$2,127.90
Test, Soil Test, Standard	299	Includes materials, shipping, labor, and equipment costs.	Each	\$9.77	1	\$9.77

Practice: 512 - Forage and Biomass Planting**Scenario: #3 - Native warm season grass mix****Scenario Description:**

Establish or reseed adapted perennial native warm season grasses to improve or maintain livestock/wildlife nutrition and health, extend the length of the grazing season, and provide soil cover to reduce erosion. Used for either conventional or no-till seeding of perennial native warm season grasses for pasture, hayland, and wildlife openings. This practice may be utilized for organic or regular production. This scenario assumes fertilizer, seed, equipment and labor for seed bed prep, tillage, seeding, and spreading.

Before Situation:

Existing stand of perennial grasses or monoculture or no grasses present. Resource concerns may include undesirable plant productivity and health, inadequate feed and forage for livestock, soil erosion and soil quality.

After Situation:

Suitable NWSG species are established to improve forage quality and quantity and reduce soil erosion on cropland, hayland, pasture and/or biomass production.

Scenario Feature Measure: Acres of Forage and Biomass Planting

Scenario Unit: Acre

Scenario Typical Size: 30

Scenario Cost: \$11,626.67

Scenario Cost/Unit: \$387.56

Cost Details (by category):

Component Name	ID	Component Description	Unit	Price (\$/unit)	Quantity	Cost
Equipment/Installation						
Tillage, Light	945	Includes light disking (tandem) or field cultivator. Includes equipment, power unit and labor costs.	Acre	\$10.77	30	\$323.10
Seeding Operation, No Till/Grass Drill	960	No Till drill or grass drill for seeding. Includes equipment, power unit and labor costs.	Acre	\$20.65	30	\$619.50
Chemical, ground application	948	Chemical application performed by ground equipment. Includes equipment, power unit and labor costs.	Acre	\$5.93	30	\$177.90
Lime application	953	Lime application performed by ground equipment. Includes equipment, power unit and labor costs.	Acre	\$9.82	30	\$294.60
Foregone Income						
Fl, Hay, General Grass	2122	General Grass Hay is Primary Land Use	Ton	\$41.38	75	\$3,103.50
Materials						
Three plus Species Mix, Warm Season, Native Perennial	2327	Native, warm season perennial grass. Includes material and shipping only.	Acre	\$220.98	30	\$6,629.40
Herbicide, Glyphosate	334	A broad-spectrum, non-selective systemic herbicide. Refer to WIN-PST for product names and active ingredients. Includes materials and shipping only.	Acre	\$15.63	30	\$468.90
Test, Soil Test, Standard	299	Includes materials, shipping, labor, and equipment costs.	Each	\$9.77	1	\$9.77

Practice: 512 - Forage and Biomass Planting**Scenario: #5 - Cool season grass and legume forage****Scenario Description:**

Establish adapted perennial introduced cool season grasses and legumes to improve or maintain livestock/wildlife nutrition and health, extend the length of the grazing season, and provide soil cover to reduce erosion. Used for either conventional or no-till seeding of perennial introduced cool season grasses for pasture, hayland, and wildlife openings. This practice may be utilized for organic or regular production. This scenario assumes fertilizer, seed, equipment and labor for seed bed prep, tillage, seeding, and spreading.

Before Situation:

Poor or nonexistent stand of grass species. Resource concerns may include undesirable plant productivity and health, inadequate feed and forage for livestock, soil erosion and soil quality.

After Situation:

Suitable species are established to improve forage quality and quantity and reduce soil erosion on cropland, hayland, pasture, and/or biomass production.

Scenario Feature Measure: Acres of Forage and Biomass Planting**Scenario Unit:** Acre**Scenario Typical Size:** 30**Scenario Cost:** \$15,257.57**Scenario Cost/Unit:** \$508.59**Cost Details (by category):**

Component Name	ID	Component Description	Unit	Price (\$/unit)	Quantity	Cost
Equipment/Installation						
Tillage, Light	945	Includes light disking (tandem) or field cultivator. Includes equipment, power unit and labor costs.	Acre	\$10.77	30	\$323.10
Seeding Operation, No Till/Grass Drill	960	No Till drill or grass drill for seeding. Includes equipment, power unit and labor costs.	Acre	\$20.65	30	\$619.50
Chemical, ground application	948	Chemical application performed by ground equipment. Includes equipment, power unit and labor costs.	Acre	\$5.93	30	\$177.90
Fertilizer, ground application, dry bulk	950	Dry bulk fertilizer application performed by ground equipment. Includes equipment, power unit and labor costs.	Acre	\$6.58	30	\$197.40
Materials						
Nitrogen (N), Ammonium Nitrate	69	Price per pound of N supplied by Ammonium Nitrate. Price is not per pound of total product applied, no conversion is needed.	Pound	\$1.00	1200	\$1,200.00
Phosphorus, P2O5	73	Price per pound of P2O5 supplied by Superphosphate. Price is not per pound of total product applied, no conversion is needed.	Pound	\$0.78	1500	\$1,170.00
Potassium, K2O	74	K2O supplied by Muriate Of Potash. Price is not per pound of total product applied, no conversion is needed.	Pound	\$0.59	1500	\$885.00
Lime, ENM	75	Fertilizer: Limestone Spread on field.	Ton	\$143.05	60	\$8,583.00
Test, Soil Test, Standard	299	Includes materials, shipping, labor, and equipment costs.	Each	\$9.77	1	\$9.77
Two Species Mix, Cool Season Annual (1 grass and 1 legume)	2314	Cool season annual grass and legume mix. Includes material and shipping only.	Acre	\$54.10	30	\$1,623.00
Herbicide, Glyphosate	334	A broad-spectrum, non-selective systemic herbicide. Refer to WIN-PST for product names and active ingredients. Includes materials and shipping only.	Acre	\$15.63	30	\$468.90

Practice: 512 - Forage and Biomass Planting**Scenario: #6 - Warm season, introduced forage****Scenario Description:**

Establish or reseed adapted introduced warm season grasses to improve or maintain livestock/wildlife nutrition and health, extend the length of the grazing season, and provide soil cover to reduce erosion. Used for either conventional or no-till seeding of perennial introduced warm season grasses for pasture, hayland, and wildlife openings. This practice may be utilized for organic or regular production. This scenario assumes fertilizer, seed, equipment and labor for seed bed prep, tillage, seeding, and spreading.

Before Situation:

Existing stand of perennial grasses or monoculture or no grasses present. Resource concerns may include undesirable plant productivity and health, inadequate feed and forage for livestock, soil erosion and soil quality.

After Situation:

Suitable species are established to improve forage quality and quantity and reduce soil erosion on cropland, hayland, pasture, and/or biomass production.

Scenario Feature Measure: Acres of Forage and Biomass Planting**Scenario Unit:** Acre**Scenario Typical Size:** 30**Scenario Cost:** \$15,557.27**Scenario Cost/Unit:** \$518.58**Cost Details (by category):**

Component Name	ID	Component Description	Unit	Price (\$/unit)	Quantity	Cost
Equipment/Installation						
Fertilizer, ground application, dry bulk	950	Dry bulk fertilizer application performed by ground equipment. Includes equipment, power unit and labor costs.	Acre	\$6.58	30	\$197.40
Seeding Operation, No Till/Grass Drill	960	No Till drill or grass drill for seeding. Includes equipment, power unit and labor costs.	Acre	\$20.65	30	\$619.50
Chemical, ground application	948	Chemical application performed by ground equipment. Includes equipment, power unit and labor costs.	Acre	\$5.93	30	\$177.90
Tillage, Light	945	Includes light disking (tandem) or field cultivator. Includes equipment, power unit and labor costs.	Acre	\$10.77	30	\$323.10
Materials						
One Species, Warm Season, Introduced Perennial Grass (seed or sprigs)	2323	Introduced, warm season perennial grass seed or sprig. Includes material and shipping only.	Acre	\$64.09	30	\$1,922.70
Test, Soil Test, Standard	299	Includes materials, shipping, labor, and equipment costs.	Each	\$9.77	1	\$9.77
Lime, ENM	75	Fertilizer: Limestone Spread on field.	Ton	\$143.05	60	\$8,583.00
Herbicide, Glyphosate	334	A broad-spectrum, non-selective systemic herbicide. Refer to WIN-PST for product names and active ingredients. Includes materials and shipping only.	Acre	\$15.63	30	\$468.90
Phosphorus, P2O5	73	Price per pound of P2O5 supplied by Superphosphate. Price is not per pound of total product applied, no conversion is needed.	Pound	\$0.78	1500	\$1,170.00
Nitrogen (N), Ammonium Nitrate	69	Price per pound of N supplied by Ammonium Nitrate. Price is not per pound of total product applied, no conversion is needed.	Pound	\$1.00	1200	\$1,200.00
Potassium, K2O	74	K2O supplied by Muriate Of Potash. Price is not per pound of total product applied, no conversion is needed.	Pound	\$0.59	1500	\$885.00

Practice: 512 - Forage and Biomass Planting**Scenario: #7 - Overseeding Legumes****Scenario Description:**

Establishment of legumes for the purpose of increasing plant diversity, soil quality and fertility, and plant health and enhancing the quality of forage. This practice may be utilized for organic or regular production. This scenario assumes fertilizer, seed, equipment and labor for seed bed prep, tillage, seeding, and spreading.

Before Situation:

Existing stand of perennial grasses or monoculture with no legumes present .

After Situation:

Legumes will be maintained through proper grazing management and improve plant diversity and soil quality.

Scenario Feature Measure: Acres of Forage and Biomass Planting

Scenario Unit: Acre

Scenario Typical Size: 30

Scenario Cost: \$12,880.50

Scenario Cost/Unit: \$429.35

Cost Details (by category):

Component Name	ID	Component Description	Unit	Price (\$/unit)	Quantity	Cost
Equipment/Installation						
Seeding Operation, No Till/Grass Drill	960	No Till drill or grass drill for seeding. Includes equipment, power unit and labor costs.	Acre	\$20.65	30	\$619.50
Materials						
Phosphorus, P2O5	73	Price per pound of P2O5 supplied by Superphosphate. Price is not per pound of total product applied, no conversion is needed.	Pound	\$0.78	1500	\$1,170.00
Two Species Mix, Cool Season Annual (1 grass and 1 legume)	2314	Cool season annual grass and legume mix. Includes material and shipping only.	Acre	\$54.10	30	\$1,623.00
Potassium, K2O	74	K2O supplied by Muriate Of Potash. Price is not per pound of total product applied, no conversion is needed.	Pound	\$0.59	1500	\$885.00
Lime, ENM	75	Fertilizer: Limestone Spread on field.	Ton	\$143.05	60	\$8,583.00

Practice: 512 - Forage and Biomass Planting**Scenario: #8 - Overseeding Legumes-No Fertilizer****Scenario Description:**

Establishment of legumes for the purpose of increasing plant diversity, soil quality and fertility, and plant health and enhancing the quality of forage. This practice may be utilized for organic or regular production. This scenario assumes, seed, equipment and labor for seed bed prep, tillage, seeding ,and spreading.

Before Situation:

Existing stand of perennial grasses or monoculture with no legumes present .

After Situation:

Legumes will be maintained through proper grazing management and improve plant diversity and soil quality.

Scenario Feature Measure: Acres of Forage and Biomass Planting

Scenario Unit: Acre

Scenario Typical Size: 30

Scenario Cost: \$2,242.50

Scenario Cost/Unit: \$74.75

Cost Details (by category):

Component Name	ID	Component Description	Unit	Price (\$/unit)	Quantity	Cost
Equipment/Installation						
Seeding Operation, No Till/Grass Drill	960	No Till drill or grass drill for seeding. Includes equipment, power unit and labor costs.	Acre	\$20.65	30	\$619.50
Materials						
Two Species Mix, Cool Season Annual (1 grass and 1 legume)	2314	Cool season annual grass and legume mix. Includes material and shipping only.	Acre	\$54.10	30	\$1,623.00

Practice: 512 - Forage and Biomass Planting**Scenario: #11 - Annuals in conversion to desirable cool season grass-legume mix****Scenario Description:**

Convert from a degraded toxic endophyte infected sod and establish a preferred, perennial cool season, grass- legume mix to improve forage quality or quantity to meet the nutritional needs and production goals of livestock, and promote soil health. The conversion will include a minimum, one-year double-crop, grazed annual mix, to smother the competition in combination with targeted burndown herbicide applications to kill the existing sod and escaped undesirable plants. Used for no-till seeding of annual and perennial grasses and legumes for pasture and hayland. This scenario assumes fertilizer, seed, equipment and labor for seed bed prep, tillage, seeding and spreading. The practice is not complete until the perennial is established.

Before Situation:

Existing stand of degraded perennial grass legume mix or monoculture or no grasses present. Resource concerns may include undesirable plant productivity and health, inadequate feed and forage for livestock, soil erosion and soil quality.

After Situation:

Suitable perennial cool season grass-legume species mix is established to improve forage quality and quantity and reduce soil erosion on pasture or hayland.

Scenario Feature Measure: Acres of Forage and Biomass Planting**Scenario Unit:** Acre**Scenario Typical Size:** 30**Scenario Cost:** \$17,527.07**Scenario Cost/Unit:** \$584.24**Cost Details (by category):**

Component Name	ID	Component Description	Unit	Price (\$/unit)	Quantity	Cost
Equipment/Installation						
Seeding Operation, No Till/Grass Drill	960	No Till drill or grass drill for seeding. Includes equipment, power unit and labor costs.	Acre	\$20.65	30	\$619.50
Fertilizer, ground application, dry bulk	950	Dry bulk fertilizer application performed by ground equipment. Includes equipment, power unit and labor costs.	Acre	\$6.58	30	\$197.40
Chemical, ground application	948	Chemical application performed by ground equipment. Includes equipment, power unit and labor costs.	Acre	\$5.93	30	\$177.90
Materials						
Potassium, K2O	74	K2O supplied by Muriate Of Potash. Price is not per pound of total product applied, no conversion is needed.	Pound	\$0.59	1500	\$885.00
Three Species Mix, Warm Season, Annual Grasses and Legumes	2326	Warm season annual grass and legume mix. Includes material and shipping only.	Acre	\$61.14	30	\$1,834.20
Four Species Mix, Cool Season, Introduced Perennial (2 grasses, 2 legumes)	2317	Cool season grass and legume mix. Includes material and shipping only.	Acre	\$49.65	30	\$1,489.50
Two Species Mix, Cool Season Annual (1 grass and 1 legume)	2314	Cool season annual grass and legume mix. Includes material and shipping only.	Acre	\$54.10	30	\$1,623.00
Herbicide, Glyphosate	334	A broad-spectrum, non-selective systemic herbicide. Refer to WIN-PST for product names and active ingredients. Includes materials and shipping only.	Acre	\$15.63	30	\$468.90
Test, Soil Test, Standard	299	Includes materials, shipping, labor, and equipment costs.	Each	\$9.77	1	\$9.77
Phosphorus, P2O5	73	Price per pound of P2O5 supplied by Superphosphate. Price is not per pound of total product applied, no conversion is needed.	Pound	\$0.78	1500	\$1,170.00
Lime, ENM	75	Fertilizer: Limestone Spread on field.	Ton	\$143.05	60	\$8,583.00
Herbicide, Glyphosate	334	A broad-spectrum, non-selective systemic herbicide. Refer to WIN-PST for product names and active ingredients. Includes materials and shipping only.	Acre	\$15.63	30	\$468.90

Practice: 512 - Forage and Biomass Planting**Scenario: #12 - Annuals in conversion to NWSG Mix****Scenario Description:**

Convert from a degraded, mixed grass pasture to establish to a native warm season grass mix to improve forage quality or quantity, to improve or maintain livestock/wildlife nutrition and health, extend the length of forage production and grazing season in combination with grazing management, provide soil cover to reduce erosion and promote soil health. The conversion will include a minimum, one-year double-crop annual mix, to smother the competition, in combination with multiple targeted burndown herbicide applications to kill the existing sod and escaped plants between seasons. Used for no-till seeding of annual and perennial grasses and/or legumes for pasture, hayland, and wildlife openings. This scenario assumes fertilizer, seed, equipment and labor for seed bed prep, tillage, seeding and spreading. This practice is not complete until the perennial is established.

Before Situation:

Existing stand of degraded perennial grasses or monoculture or no grasses present. Resource concerns may include undesirable plant productivity and health, inadequate feed and forage for livestock, soil erosion and soil quality.

After Situation:

Suitable native warm season perennial plant mixture is established to improve forage quality and quantity and reduce soil erosion on cropland, hayland, pasture, and/or biomass production

Scenario Feature Measure: Acres of Forage and Biomass Planting**Scenario Unit:** Acre**Scenario Typical Size:** 30**Scenario Cost:** \$16,320.47**Scenario Cost/Unit:** \$544.02**Cost Details (by category):**

Component Name	ID	Component Description	Unit	Price (\$/unit)	Quantity	Cost
Equipment/Installation						
Seeding Operation, No Till/Grass Drill	960	No Till drill or grass drill for seeding. Includes equipment, power unit and labor costs.	Acre	\$20.65	30	\$619.50
Fertilizer, ground application, dry bulk	950	Dry bulk fertilizer application performed by ground equipment. Includes equipment, power unit and labor costs.	Acre	\$6.58	30	\$197.40
Chemical, ground application	948	Chemical application performed by ground equipment. Includes equipment, power unit and labor costs.	Acre	\$5.93	30	\$177.90
Materials						
Three Species Mix, Warm Season, Annual Grasses and Legumes	2326	Warm season annual grass and legume mix. Includes material and shipping only.	Acre	\$61.14	30	\$1,834.20
Test, Soil Test, Standard	299	Includes materials, shipping, labor, and equipment costs.	Each	\$9.77	1	\$9.77
Two Species Mix, Cool Season Annual (1 grass and 1 legume)	2314	Cool season annual grass and legume mix. Includes material and shipping only.	Acre	\$54.10	30	\$1,623.00
Herbicide, Glyphosate	334	A broad-spectrum, non-selective systemic herbicide. Refer to WIN-PST for product names and active ingredients. Includes materials and shipping only.	Acre	\$15.63	30	\$468.90
Lime, ENM	75	Fertilizer: Limestone Spread on field.	Ton	\$143.05	30	\$4,291.50
Three plus Species Mix, Warm Season, Native Perennial	2327	Native, warm season perennial grass. Includes material and shipping only.	Acre	\$220.98	30	\$6,629.40
Herbicide, Glyphosate	334	A broad-spectrum, non-selective systemic herbicide. Refer to WIN-PST for product names and active ingredients. Includes materials and shipping only.	Acre	\$15.63	30	\$468.90